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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,710	04/10/2001	Karthik Ramaswami	DCL1871/M4954	1784

7590
Barry D. Josephs
19 North Street
Salem, MA 01970

09/30/2003

EXAMINER

MERCADO, JULIAN A

ART UNIT PAPER NUMBER

1745

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,710

Applicant(s)

RAMASWAMI ET AL.

Examiner

Julian A. Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13,15-20,23,25,26,28-30,32-40 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 13,15-20,23,25,26,28-30,32-40 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Remarks

This Office Action is responsive to applicant's amendment filed June 30, 2003.

Claims 1-12, 14, 21, 22, 24, 27 and 41-43 have been canceled.

Claims 13, 15-20, 23, 25, 26, 28-30, 32-40 and 48 are pending, of which independent claim 48 is newly submitted.

The objection to claim 35 has been withdrawn.

The 35 U.S.C. 102(b) rejection based on Wiacek (U.S. Pat. 4,014,211) is deemed moot as claims 1-6 are now canceled.

The 35 U.S.C. 102(b) rejection based on JP 50-134137 is deemed moot as claim 1 is now canceled.

The 35 U.S.C. 102(b) rejection based on JP 54-60424 is deemed moot as claim 1 is now canceled.

The 35 U.S.C. 103(a) rejection(s) based on Mansfield, Jr. et al. (U.S. Pat. 5,306,580) and either JP 50-134137 or 54-60424, and Jaggard (Re. 31,413) and Gordon et al. (U.S. Pat. 6,060,196) have been withdrawn in view of applicant's amendment to the present claims now reciting that the zinc anode material is in contact with the inner copper surface of the triclاد material. In Mansfield, Jr. et al., the triclاد material of Ni [35]/stainless steel [37]/Cu [33] has an underlayer of In [34], which precludes the triclاد material from contacting the zinc anode material [26]. (Figure 1, col. 6 line 4-6)

Drawings

The drawings were received on June 30, 2003. These drawings are acceptable, however, the examiner notes that these drawings are no different than those already present in the file. It is suggested to replace Figures 3-5 with computer-generated equivalents thereof.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Claims 13, 15-20, 23, 25, 26, 28-30, 32-40 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oltman et al. (U.S. Pat. 5,567,538) in view of JP 50-134137 (hereinafter JP '137) and Mansfield, Jr. et al. (U.S. Pat. 5,306,580).

Regarding independent claims 13 and 48 and dependent claims thereto as noted below, Oltman et al. teaches a zinc/air cell having an anode can [24], a cathode [40] with at least one hole [54], the anode having an open end with a peripheral edge proximal to "can foot" [36]. (col. 12 line 3-12, col. 14 line 16-65, also applies to dependent claims 29 and 37) The anode can has a thickness between 0.114 mm to 0.145 mm. (col. 4 line 28-30, applies to dependent claim 30) An electrically insulating material [60] resides between the cathode and anode. (col. 13 line 28 et seq., also applies to dependent claim 19) The anode can or casing is of stainless steel material and further comprises an inner surface [32] of copper and an outer surface [34] of nickel, thereby resulting in a triclad of metals. (col. 22 line 1-8) As the anode can has an edge, it can be appreciated to have an exposed portion at the distal end thereof. The diameter

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and height of the cell range from less than 6.4 to 25 mm and less than 2.1 to about 15 mm. (col. 1 line 30-34, applies to dependent claim 15, 16)

Oltman et al. does not explicitly teach a metal coating over the anode cup surfaces and end edge surface portions. However, as discussed in the prior Office Action JP '137 teaches coating anode cups, both at its inner and outer surfaces along with its exposed edge surfaces, with a metal coating, "[t]he rim part of Ni-plated anode sealing plate, which attaches to the insulator packing of the plate, is coated with Ni oxides". (Abstract) Thus, the skilled artisan would find obvious to modify Oltman et al. by employing a metal coating over the anode cup and edge surface portions thereof for reasons such as prevention of electrolyte leakage.

(Abstract, also applies to dependent claims 17-19, 25, 39 and 40) Of note, the coating in JP '137 abuts the insulating material [3]. (Figure 1, applies to dependent claims 19, 28) With respect to tin and copper layers, Mansfield, Jr. et al. specifically discloses mutual equivalence of these metals, along with nickel, as protective metals, "[c]opper is the preferred material to use as an underlayer", "[t]he surface of the substrate located opposite the underlayer is commonly coated with a metal such as nickel or tin", "this underlayer resists passivation and/or attack by the cell's electrolyte" (col. 4 line 24-25, line 26-27 and line 21-22, respectively), "[t]he preferred material for use as the overlayer is nickel because of its bright appearance and adequate corrosion resistance". (col. 4 line 31-33) Thus, the skilled artisan would find obvious to substitute tin or copper for the nickel layer in JP '137 as these metals are art-recognized equivalents for their mutually-shared properties of resistance from electrolyte attack and corrosion.

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Dependent claim 20 has not been given patentable weight, as this claims are drawn to a process-of-using limitation which does not give breadth or scope to the structural features of the article or product claim.

Regarding dependent claims 33 and 35, while Oltman et al. does not explicitly teach the zinc particles to comprise indium, lead and aluminum, Mansfield, Jr. et al. discloses indium, lead and aluminum (In, Pb and Al, respectively) to be well-known elements alloyed with the zinc anode base. (col. 2 line 31-37) In practice, Mansfield, Jr. et al. teaches addition of indium (In) to the anode mass of a battery (col. 8 line 56-66) Thus, at the time the invention was made, the skilled artisan would find obvious to add indium, lead and/or aluminum, *inter alia*, to the anode mass of zinc particles in Oltman et al. The motivation for such a modification would be to improve the impedance of the cells and improve corrosion resistance. (*ibid*)

As to the thickness of the metal coating, absent of unexpected results the metal thickness is maintained an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) The thickness of an outer metal plating is considered result-effective as it directly effects continuity (or lack thereof) of the deposited layer. (see, for example, Mansfield, Jr. et al. at col. 3 line 31 et seq., applies to dependent claims 23, 26 and 32) As to the relative amounts of indium, lead and aluminum, the respective amounts thereof are similarly considered result-effective as it directly effects battery capacity and cell impedance. (applies to dependent claims 34, 36 and 38)

Response to Arguments

The examiner's response to each of applicant's arguments (starting on page 14 of the present response) and, where relevant, applicant's discussion of the references relied upon (starting on page 10 of the present response) here follows:

Applicant's arguments against Wiacek are deemed moot as claim 1 is now canceled.

The 35 U.S.C. 102(b) rejection based on JP 54-60424 is deemed moot as claim 1 is now canceled. have been fully considered but are deemed moot, as the ground of rejection based on this reference has been withdrawn.

Arguments against Mansfield, Jr. et al. to the extent that they may be applicable towards the new ground of rejection set forth in this Office Action, have been fully considered, however they are not persuasive.

Applicant submits that in Mansfield, Jr. et al., there is no indication of applying any protective coating to the peripheral edge surfaces of the can. The examiner acquiesces, to the extent that the prior ground of rejection clearly set forth that Mansfield, Jr. et al. does not explicitly teach a metal coating over the anode cup and end edge surface portions thereof. However, in this regard, applicant is reminded that one cannot show nonobviousness by attacking references individually, where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the prior Office Action, the teachings of JP '137 or JP '424 were relied upon to teach a metal coating over the anode cup surfaces and end edge surface portions. JP '137 is maintained to teach such a metal coating, both at its inner and outer surfaces along with its exposed edge surfaces, with a metal coating, "[t]he rim part of Ni-plated anode

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sealing plate, which attaches to the insulator packing of the plate, is coated with Ni oxides”.

(Abstract) Applicant is noted to state that in JP ‘137, “[t]he figure shows that the Ni oxide coating also covers the peripheral edge surface of the anode cup. Thus the Ni oxide would cover any exposed nickel and iron layers at the anode cup’s peripheral edge surface”. (response, page

12) The basis for applicant’s argument is unclear, as it appears to the examiner that applicant understands JP ‘137 to indeed coat the peripheral edge of the anode cup. While it is further noted on page 15 of the response that JP ‘137 and JP ‘424 are alleged to “not disclose or suggest employing copper to cover different exposed metals at the anode cup’s peripheral edge surface”, since the anode cup in Oltman et al. is clearly of a triclad material as outlined above, it is maintained that coating the edge or “rim part” thereof would result in these different metals to be covered based on the teachings of JP ‘137.

Arguments against JP ‘424 and JP ‘125 have been fully considered, but are deemed moot as the present Office Action does not rely on either of these references as a basis for a prior art rejection.

Arguments against Jaggard and Gordon are acknowledged but appear to be directed to these references failing to remedy alleged deficiencies in the prior ground of rejection based on Mansfield, Jr. et al. and either JP ‘137 or JP ‘424. The examiner further notes that Jaggard is not presently relied upon as a basis for rejection. Additionally, the teachings of Gordon are not relied upon in this Office Action as claims 41-43 have been canceled.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700